

# LIVES Feed Value Chain Development: Approaches and Scalable Interventions

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Foreign Affairs, Trade and  
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# Outline

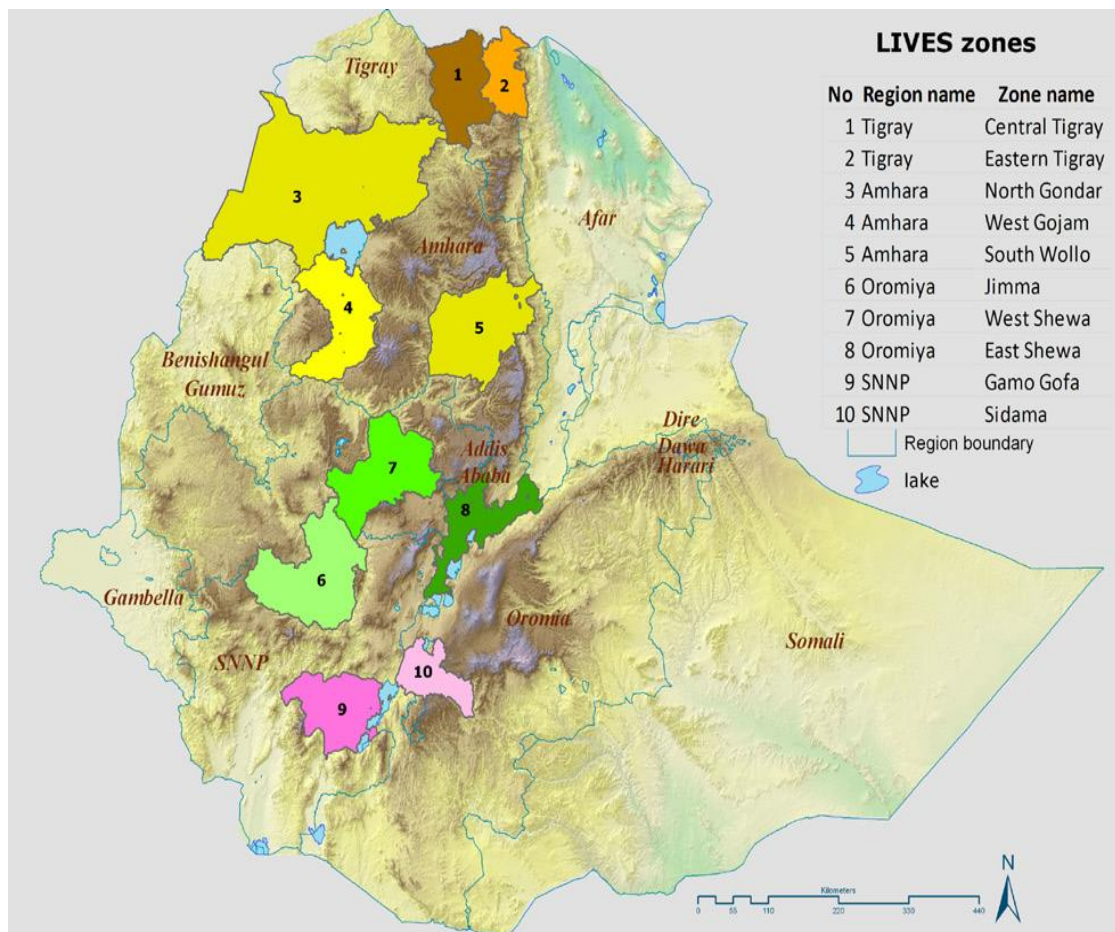
- Background to feed problem
- LIVES approaches to feed development intervention
- Scalable feed development interventions
  - Grazing land improvement
  - Improved green feed production
  - Chopper and EM for poor quality residues
  - Facilitating linkage
- Lessons learned and challenges faced
- Implications for scaling

# Background

- Feed is number of priority and securing year round feed supplies to meet targets set for meat (58%), milk (83%) and eggs (240%) production in 2020 is mandatory (ELMP, 2015).
- But only 60-80% of the annual maintenance requirement of livestock in the four regions where LIVES operates is met.
- There are options that help achieve year round feed supply:
  - Focus on the two major feed resources: grazing land productivity and crop residue improvement (contribute more than 94% of the feed requirement of livestock)
  - Promote improved green feed production in irrigated areas
  - Facilitate linkage between feed traders and producers

# Approaches to feed development interventions

- Interventions carried out in:
  - Amhara (North Gondor, South Wollo and West Gojjam Zones),
  - Oromia (Jimma, East Showa and West Whowa Zones),
  - SNNP (Sidama and Gamo Gofa Zones) and
  - Tigray (Central and Eastern Zones) regions:
- Home for more than 20 million people (CSA 1999).
- Account for 30% of cattle and sheep, 23% of goats, 33% of poultry and 28% of beehive populations of the country (CSA 2012/2013).



**Map of LIVES intervention zones**

# Approaches-cont'd

- Zonal workshops
- Clustering of districts and PAs
- Formation of district level **livestock commodity platforms-**  
Problem identification and prioritization
- Recruiting intervention households
- Providing capacity development and **house-to-house coaching and mentoring** services
- Participating in LIVES Knowledge management events
- Providing **demonstration materials** and linkage facilitation



# Implementation of interventions

- Grazing land improvement
  - Oromia: urea/DAP (150/100 kg/ha), manure (7.5 t/ha), and wood ash (3t/ha).
  - Tigray: urea top dressed at 100, 150 and 200 kg/ha
- Improved green feed development
  - Improved fodder production was integrated with existing small scale irrigation
  - Only the most productive species targeted-alfalfa, desho, Napier, and Rhodes and planted as pure stand, along canals, riverbeds and sloppy areas.
  - For bee fodder, attention was given to fast growing and pollen and nectar rich dwarf shrubs.
- Crop residue improvement and feed preservation using choppers and EM

# Results-grazing land

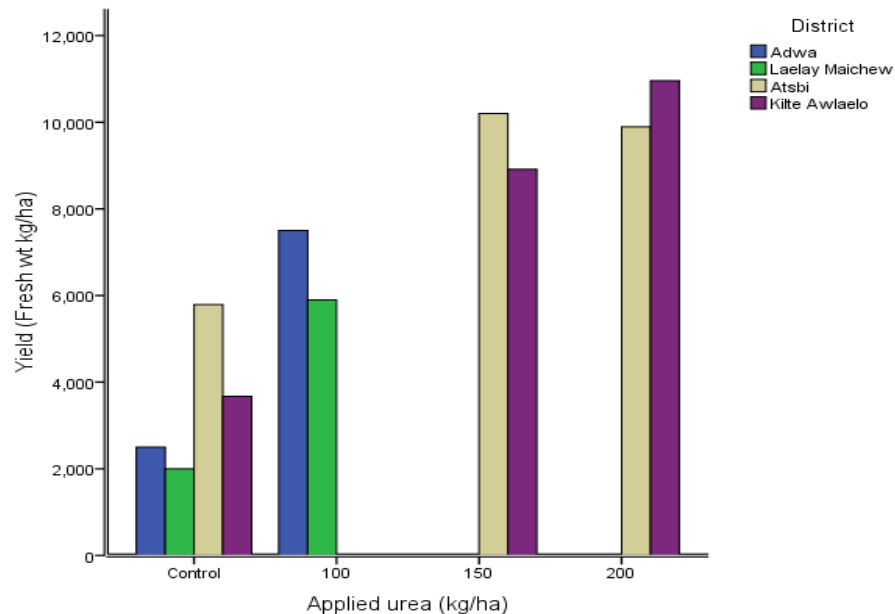
- Oromia: Total biomass in urea/DAP applied plots doubled over the control (5743 Vs 2829 kg DM/ha).

Treatments	Total biomass
Control	2829.3
Ash	3944
Urea and DAP	5742.9
Manure	4702.7



# Results-cont'd

- Tigray: yield increased by 2-3 folds over the control.



**Biomass yield from urea top dressed grazing lands in Tigray region**

# Results—cont'd

- Cutting frequencies tripled compared to unfertilized control plots
- Fertilizer application extended the period of greenness by 1-2 months.
- In both regions the technology is increasingly being adopted by individual farmers and grazing committees.



**Urea top dressed grazing lands**

# Results—improved green fodder

- For most LIVES intervention districts, improved green fodder production is almost new and farmers took advantage of the current scarcity in forage planting materials and quickly adopted the technology.

Oromia:

- Desho, Napier and Rhodes grass were demonstrated to farmers and FCTs
- Desho grass in particular was favoured by farmers who generated up to 30,000 Birr from selling splits
- Farmers witnessed an increase in milk yield.

# Results—improved green fodder

Amhara: Farmers generated 450,000-600,000 Birr from Rhodes grass seeds marketing.

Fodder crop	Harvesting interval	Biomass	Preference by animals	Harvesting frequency
Elephant grass	In 21 and 30 days during dry & wet seasons, respectively	2 <sup>nd</sup>	1 <sup>st</sup>	1 <sup>st</sup>
Rhodes grass	In 45 days during wet season	4 <sup>th</sup>	3 <sup>rd</sup>	3 <sup>rd</sup>
Desho grass	In 60 days both in dry and wet seasons	3 <sup>rd</sup>	2 <sup>nd</sup>	2 <sup>nd</sup>
Bracheria	In 60 days both in dry and wet seasons	1 <sup>st</sup>	4 <sup>th</sup>	2 <sup>nd</sup>

# Results—cont'd

Tigray: Alfalfa and Napier were the choice crops

District	No PAs	No. Farmers	Average		Cutting
			area (m <sup>2</sup> )	Yield (kg/m <sup>2</sup> )	frequency (days)
Adwa	2	31	292	3.6	20
Ahferom	2	23	205	2.8	17
Laelay Maichew	2	14	167	2.2	20
Atsbi	1	7	57	5.6	15
Ganta Afeshum	2	24	120	0.4	30
Kilte Awlaelo	4	22	1123	0.3	16
Saesi Tsaeda					
Emba	3	30	281	5.1	27
<b>Average</b>	<b>16</b>	<b>151</b>	<b>321</b>	<b>3</b>	<b>21</b>



# Results—cont'd



**Pure alfalfa stands**



**Alfalfa mixed with maize and Guava fruits**

# Results—cont'd



*Napier grass in Amhara region*



# Results—cont'd



**Napier grass along irrigation canal in Lalaelay Maichew**



**Napier grass along riverbed in Atsbi**

# Results—cont'd

- **Bee fodder development**

- About 10000 seedlings of *Becium grandiflorum* (*tebeb*) were planted by beekeepers as a result nectar flow increased, colony strength improved, and 3-5 kg/hive honey increment realized .



***Becium grandiflorum* (*tebeb*) seedlings in a public nursery FCT**

# Results—Chopper and EM

- LIVES demonstrated the use of manageable size choppers in combination with EM to improve the feeding value of CRs.
- Benefits include increased feed intake, better feed utilization and if combined with EM reasonable increments in body weight and milk
- Farmers and cooperatives already started purchasing chopper



**Traditional maize stover handling and storage-wastage**



# Results—cont'd



**Maize Food & Feed**



**Maize Stover untapped potential for livestock feed**

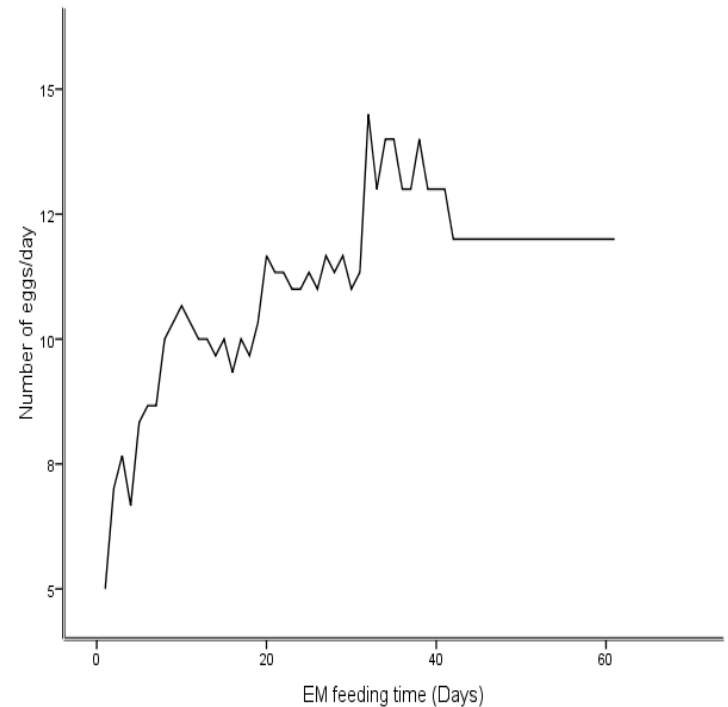
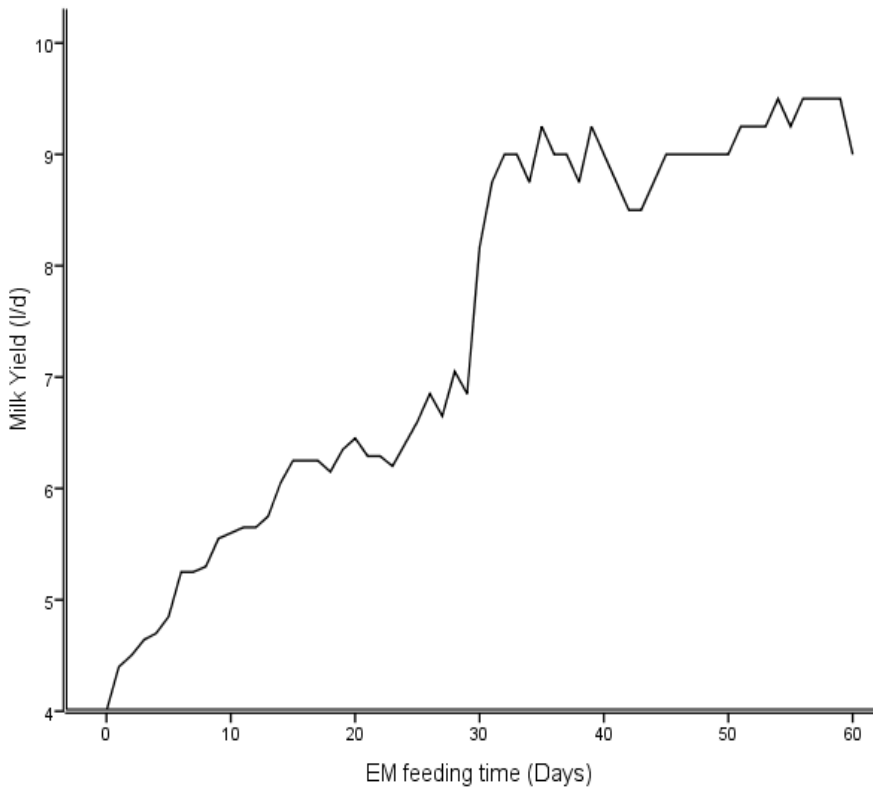


**Chopper businesses in Amhara, Oromia and Tigray**

## Results—EM

- In dairy cows milk yield increased from 4 l/d/cow at the beginning of the trial to 9.5 l/d/cow at the end of 60 days feeding trial.
- In Tigray, feeding poultry EM treated wheat bran led to 37-50% increase in egg production and 20% in Oromia
- Apart from egg production, producers also witnessed fast growth and a significant reduction in ammonia gas smell
- EM technology was adopted by more than 500 households in Oromia and Tigray regions.

# Results—EM



**Milk and egg production trend after feeding EM treated straw and wheat bran**

# Results-Bag silage and urea treatment



**Storage and feeding of silage made using plastic bags**



**Urea treated teff straw in plastic bag**



# Results—Linkage facilitation

- Linkage facilitation between feed traders and producers is one of the gaps observed in the current extension system.
- In three regions, the feed shops were able to trade more than 31,000 quintals of AIBPs and generate more than 19 million Birr gross revenue.

Region	Number of shops supported	Amount sold (quintals)	Gross revenue generated (Birr)	Remark
Amhara	5	-	-	-
Oromia	4	1515	1,063,960	From two shops over 1 year
SNNP	6	10,084	8,067,200	From 6 shops over two years
Tigray	17	19,736	10,533,289	From 17 shops over one year
<b>Total</b>	<b>32</b>	<b>31,335</b>	<b>19,664,449</b>	

# Lessons learned and challenges faced

- Fertilizers application on grazing lands is promising. This requires convincing grazing committees and local leaders.
- Improved green feed development can easily be integrated into existing irrigation system. Preparing easy to read small booklets is helpful.
- Certified forage seed supply system remains to be a challenge. Supporting farmer-to-farmer seed exchange can serve as a short term solution and in the long term engaging NARS/universities in forage seed production is needed.
- Bee fodder development is an attractive incentive for beekeepers and requires less effort and investment and needs to be embedded into the annual work plan of public nurseries.
- Chopping coarse feeds increases intake and addition of EM to chopped feeds optimizes its palatability and edibility. Access to choppers and big size plastic sheets, however, was a challenge for most farmers.
- Loose feed quality certification/regulation and lack of focus on facilitating linkage with input suppliers is a challenge and there is a need to revisit current extension support.

## Results—cont'd

- Fertilizer applications need to be applied on areas where grazing contributes a substantial proportion of the annual livestock feed demand and where cut-and-carry system is practiced.
- Green feed development can attract farmers who are closely associated with dairy farming linked with market.
- The use of choppers needs to be a priority in irrigated areas where the availability of stover and other coarse green feeds are already abundant.
- Linking chopper service with cooperatives/unions and youth groups can be an effective option. Tube silage and urea treatment technology needs to target farmers with small number of animals.



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